represents the lowest achievable concentration associated with a 99% reliability of a nonzero result. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

13. **Unknown chromatographic peaks** shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

14. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

MONITORING DATA ANALYSIS

15. All monitoring data analysis methods shall be consistent with the performance standards specified in Section 20415(e)(9) and sampling standards specified in Section 20415(e)(12).

16. Some of the monitoring data analysis procedures specified in these WDRs (including the MRP) are different than, or are contradictory to, those specified in the SPRR (incorporated under Provision I.2 of this Order). In particular, Monitoring Specification allows for (but does not require) use of monitoring data analysis methods other than the hierarchal Analysis of Variance (ANOVA) approach described in the SPRR. Monitoring Specifications G.18, G.20, and G.21 clarify which specific constituent groups shall be evaluated statistically and which constituent groups shall be evaluated non-statistically. Monitoring Specification G.21 treats VOCs as individual monitoring parameters rather than as a single combined monitoring parameter as set forth in the SPRR. In accordance with General Provision 8 of the SPRR, the data analysis specifications in the WDRs and MRP shall govern over those of the SPRR in such cases where they are inconsistent.

17. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Section 20415(e)(7) that is used in the statistical method shall be the lowest

concentration (or value) that can be reliably achieved within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. Any Section 20415(e)(7) technical report submitted by the Discharger shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

Concentration Limits

18. Concentration limits (CLs) for corrective action monitoring shall be developed consistent with Monitoring Specifications G.19 through G.21 below.

19. For inorganic COCs for which at least 10% of the data from background samples equal or exceed their respective MDL (i.e., naturally occurring COCs), the Discharger shall use one of the following **statistical** data analysis methods for determination of CLs and detection of a release:

    a. Tolerance or Prediction Interval statistical method;

    b. Analysis of Variance (ANOVA) statistical method; and/or

    c. An alternative statistical method authorized under Section 20415(e)(8) and approved by the Executive Officer under Section 20415(e)(7)).

    Background monitoring data shall be screened for trends prior to calculating s to ensure that it represents a single statistical population (i.e. one that does not show appreciable variation per Section 20415(e)(10)). CLs shall be periodically updated, as necessary, to reflect current background conditions. If a significant trend is identified that reflects changes in background conditions, data prior to development of the trend shall not be included in updating s. Otherwise CLs shall include prior historical data. Statistical CLs shall also take into account any seasonality in the data.

    Any analyte that exceeds its statistical CL shall provide a preliminary indication [or, for a retest, measurably significant evidence] of a release at that monitoring point.

20. For inorganic COCs for which less than 10% of the data from background samples equal or exceed their respective MDL (including inorganic COCs not detected in background), the CL shall be the MDL. Any analyte that exceeds its MDL shall provide a preliminary indication [or, for a retest, measurably

significant evidence] of a release at that monitoring point.

21. For VOCs and all other organic COCs, the CL shall be the MDL, and the trigger for detection of a release shall be as follows:

    a. From the COC or monitoring parameter list, identify each analyte in the current sample that exceeds its respective MDL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:

        1) The data contains two or more analytes that equal or exceed their respective MDLs; or

        2) The data contains one analyte that equals or exceeds its PQL.

22. If the above statistical or non-statistical trigger procedures used for monitoring data analysis for a given media provide a preliminary indication of a release (i.e., new release or a previously unconfirmed constituent of the existing release) at a given monitoring point, the Discharger shall immediately notify Regional Water Board staff by phone or e-mail of a preliminary indication of a release, and, within 30 days of such indication, conduct confirmation (retest) sampling.

    a. Exceedances for constituents that have been previously confirmed as part of the release at a given monitoring point, including regularly-detected and sporadically detected (e.g. as a result of seasonal or lateral fluctuations in the plume) COCs, shall be considered confirmed without notification and retest.

    b. Exceedances for any other constituent for which the Discharger fails to conduct a retest will be considered confirmed without retest unless and until the Discharger demonstrates its absence through subsequent monitoring.

Discrete Retest

23. Confirmation sampling shall consist of taking two new (retest) samples from the monitoring point where the release is preliminarily indicated. For any given retest sample, the Discharger shall include in the retest analysis only the laboratory analytical results for those analytes detected in the original sample.

    a. As soon as the retest data are available, the Discharger shall apply the same tests [i.e. G.19 for statistical constituents, G.20 or G.21 for non-statistical constituents], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.

    b. If either (or both) of the retest samples trips the applicable trigger above, then the Discharger shall conclude that there is measurably significant

evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:

1) Immediately notify the Regional Water Board about the constituent verified to be present at the monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and

2) Proceed in accordance with G.24 and/or G.25, below, as applicable.

24. Exceedances that the Discharger demonstrates per Section 20420(k)(7) are the result of sample corruption, laboratory interferences, error, natural variation in the water quality, statistical evaluation, or other cause not associated with a release from the unit shall not provide a preliminary indication of a release, or, in the case of a discrete retest, confirm a release. Retesting may be necessary, however, to make such demonstration or, such as in the case of error or laboratory interferences, to obtain valid monitoring data.

25. Any COC confirmed by retest as part of an existing release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. If the Discharger determines that there is measurably significant evidence of a new release from the Unit at any monitoring point, the Discharger shall immediately implement the requirements of Response To A Release, contained in the SPRR.

Corrective Action Progress

26. The data analysis methods shall also include trend analysis using time series plots and an evaluation of the water chemistry to monitor the effectiveness of corrective action measures in accordance with Section D.3 of the MRP. The trigger requirement for performing trend analysis shall be at least 4 historical data points above the PQL. The water quality chemistry analysis shall, at a minimum, include ion balance and an appropriate graphical method (e.g., Piper diagram, trilinear plot, stiff diagram, Scheuler plot).

27. Prior to termination of corrective action measures required under Section 20430(c), the discharger shall demonstrate, pursuant to Section 20430(f), that the constituents of the release have been reduced to levels below concentration limits throughout the entire zone affected by the release. During this "proof period", the Discharger shall demonstrate that:

a. The concentration of each constituent in each sample from each monitoring point remained at or below its concentration limit for at least one year, beginning immediately after the suspension of corrective action measures; and

b. The individual sampling events for each monitoring point must have been evenly distributed throughout the proof period and have consisted of at least eight sampling events per year per monitoring point.

28. Any proposal for concentration limits greater than background (CLGBs) shall be accompanied by the requisite demonstration under Section 20400(c) (i.e., that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment). Approval of CLGBs shall require approval of revised WDRs by the Regional Water Board.

H. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in MRP Order No. R5-2008-0106 and in the SPRR.

2. The Discharger shall immediately notify the Regional Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

3. The Discharger shall notify the Regional Water Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Water Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory requirements contained in the SPRR (Reporting Requirement 5) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Water Board.

4. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

   California Regional Water Quality Control Board
   Central Valley Region
   11020 Sun Center Drive, Suite 200
   Rancho Cordova, CA 95670
   (or the current address if the office relocates)

I. PROVISIONS

1. The Discharger shall comply with the MRP No. R5-2008-0106, which is attached to and made part of this order. A violation of the MRP is a violation of these waste discharge requirements.

2. The Discharger shall comply with the August 1997 SPRR, which are incorporated herein and made part of this Order by reference. The SPRR contain important provisions and requirements with which the Discharger must comply. A violation of any of the SPRR is a violation of these waste discharge requirements.

3. The Discharger shall maintain the waste containment facilities, landfill final cover, precipitation and drainage controls, landfill gas controls, and groundwater monitoring wells, and shall continue to monitor ground water and surface waters per MRP No. R5-2008-0106 throughout the post-closure maintenance period.

4. The owners of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged wastes during the closure and post-closure maintenance period of the landfill and during subsequent use of the property for other purposes.

5. If the Discharger or Regional Water Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Regional Water Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:

   a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
   b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release
   c. A discussion of corrective action options and feasibility.
   d. Proposed additional corrective action measures, as necessary,
   e. A plan to monitor the progress of corrective action measures consistent with the MRP
   f. Cost estimates for implementing additional corrective action, including monitoring
   g. An implementation schedule.

6. The Discharger shall obtain and maintain assurances of financial responsibility for closure/post-closure maintenance (including facility monitoring) costs for the landfill in the amount of the approved cost estimates submitted under Provision I.8.a.i. The financial assurances mechanism shall be an irrevocable fund or other acceptable mechanism under the California Integrated Waste Management Board (CIWMB)-promulgated sections of Chapter 6, Title 27, but

with the Regional Water Board named as beneficiary. Budgeted clean closure funds (i.e., per Finding 62) may be applied for satisfaction of this requirement.

7. The Discharger shall obtain and maintain financial assurances in the amount of the approved corrective action cost estimates under Provision I.8.a.ii and I.8.a.iii. The financial assurances mechanism shall be an irrevocable fund or other acceptable mechanism under the California Integrated Waste Management Board (CIWMB)-promulgated sections of Chapter 6, Title 27, but with the Regional Water Board named as beneficiary.

8. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

   a. By **31 October 2008**, the Discharger shall submit for Board staff approval an updated Post-Closure Maintenance Plan (PCMP) to reflect current operations and requirements under these WDRs and MRP No. R5-2008-0106. The plan shall include updated estimates for the following:

      i. Costs of closure/post-closure maintenance related repairs (e.g., to final cover and drainage system) and associated facility monitoring in the event that clean closure construction is interrupted for a significant period of time (six months or more);

      ii. Costs of postclosure corrective action monitoring from the beginning of clean closure construction through the required compliance period specified in the MRP (including proof period required under Section 20430(f) to demonstrate compliance with the Water Quality Protection Standard);

      iii. Corrective action costs, over and above those necessary for clean closure construction activities, to address a known or reasonably foreseeable release so as to achieve compliance with the Water Quality Protection Standard.

   b. Within 2 months after completion of construction, the Discharger shall submit the project as-built plans, CQA report and certification report.

   c. By **31 July 2010**, in consideration of the possible need to submit an amended RWD as described above, the Discharger shall submit a technical report containing an evaluation of the effectiveness of the corrective action program based on monitoring under this Order. At a minimum, the report shall consider progress toward remediating releases from the landfill and achieving compliance with the Water Quality Protection Standard. If the Discharger determines that an amended RWD is needed, the report shall include a schedule for submission of the amended RWD within 90 days. If the Discharger determines that the corrective action program is adequate and that an amended RWD does not need to be submitted under this

provision, the report shall explain the adequacy of the existing program, addressing why additional corrective action measures and/or monitoring are not necessary. Such determination shall not preclude a contrary determination by Board staff.

9. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

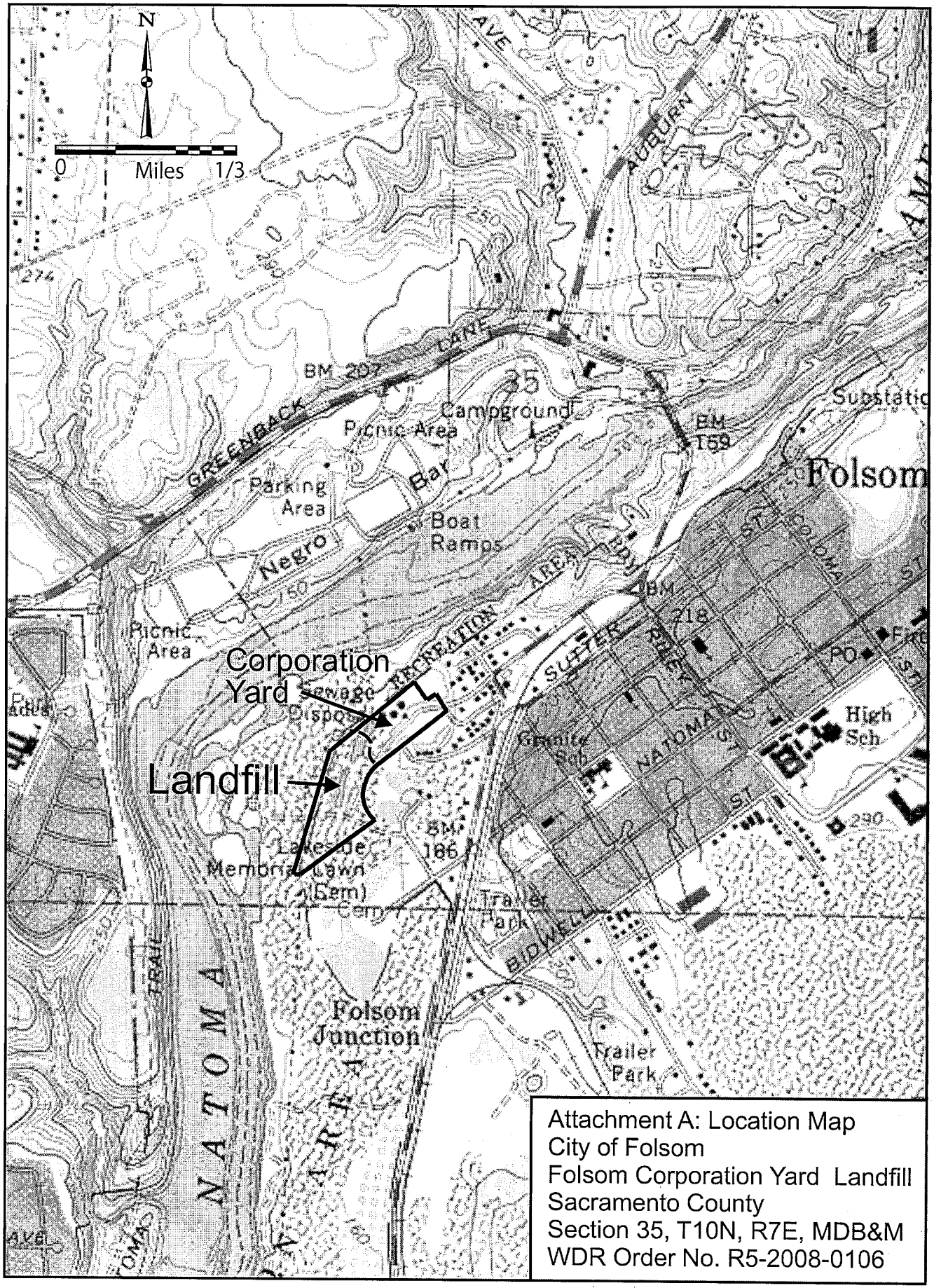
10. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

11. The Regional Water Board will review this Order periodically and will revise these requirements when necessary.

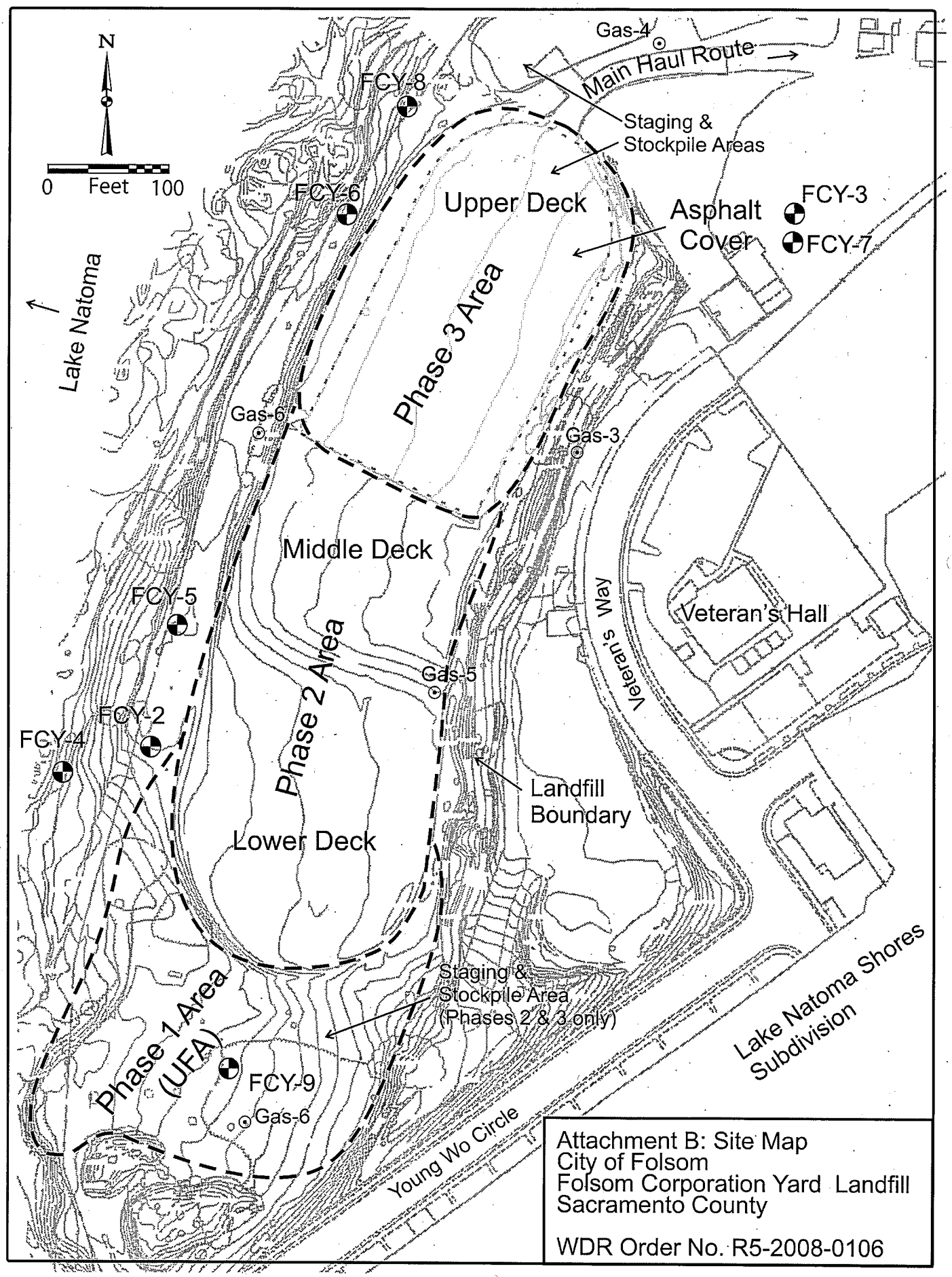
I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 31 July 2008.

PAMELA C. CREEDON, Executive Officer

JDM: 31 July 2008



Attachment A: Location Map
City of Folsom
Folsom Corporation Yard Landfill
Sacramento County
Section 35, T10N, R7E, MDB&M
WDR Order No. R5-2008-0106



Attachment B: Site Map
City of Folsom
Folsom Corporation Yard Landfill
Sacramento County

WDR Order No. R5-2008-0106

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0106
FOR CLEAN CLOSURE OF
FOLSOM CORPORATION YARD LANDFILL
CITY OF FOLSOM
CLASS III LANDFILL
SACRAMENTO COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code Section 13267 and incorporates requirements for corrective action, detection and site maintenance monitoring contained in Title 27 regulations, Waste Discharge Requirements (WDRs) Order No. R5-2008-0106, and the August 1997 Standard Provisions and Reporting Requirements (SPRR). Compliance with this MRP is ordered by the WDRs. The Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Executive Officer.

Pursuant to 27 CCR Section 20430(d), the Discharger shall maintain water quality monitoring systems for background and corrective action monitoring.

MRP SUMMARY TABLE

Section	*Type*	*Frequency*
	Monitoring	
A.	Standard Observations	Weekly
B.	Facility Monitoring:	
	1. Maintenance Inspections	Monthly
	2. After Significant Storm Events	Within 7 Days After Event
	3. Site Winterization	Annually
C.	Water Quality Protection Standard	Update as necessary
D.	Groundwater Monitoring	
	1. Elevation	Quarterly
	2. Background	
	a. Field Parameters	Semiannually
	b. Monitoring parameters	Semiannually
	c. Constituents of Concern	Annually
	3. Corrective Action	Same as D.2
E.	Surface Water Monitoring:	Per General Storm Water Permit
	Reporting	
F.	Periodic Reporting:	
	1. Semiannual Report[1]	Semiannually
	2. Annual Monitoring Summary	Annually
	3. Constituents of Concern	Every 5 years
G.	Notifications[2]	Per SPRR

1. Including certification of standard observations
2. In event of release or leachate seep.

A. STANDARD OBSERVATIONS

Standard observations shall be performed **weekly** at the site and shall include those elements identified in Definition 24 of the SPRR. Each monitoring report shall include a summary and certification of completion of all Standard Observations (*Provision 2h, Reports to be Filed with the Board, REPORTING REQUIREMENTS, SPRR).* Field logs of standard observations shall also be included in the report. Any landfill leachate seeps detected during these inspections (or at any other time) shall be reported in accordance with the SPRR (*Provision 3, Reports to be Filed with the Board, REPORTING REQUIREMENTS*), and any leachate that enters the excavation area or facility drainage system shall be sampled and analyzed for the COCs referenced in Table C herein. This monitoring shall discontinue upon concurrence by Regional Water Board Executive Officer that clean-closure is complete and in compliance with WDRs Order No. R5-2008-0106.

B. FACILITY MONITORING

The discharger shall inspect those areas of the landfill and associated facilities (e.g., cover, precipitation and drainage controls, monitoring wells, access roads) not yet disturbed by clean closure activities (i.e., areas not within the current phase of clean closure construction), as necessary, to ensure that such facilities are functioning properly and in adequate repair. Facility inspections shall also include any disturbed areas of the landfill where clean closure construction activities have been suspended for a significant period of time (i.e., six months or greater). Any damage to the landfill facilities observed during these inspections shall be flagged and repaired. Facility inspections and repairs shall be conducted in accordance with the following schedule:

	Purpose	Inspection Frequency	Complete Repairs[1]
1.	Regular Maintenance	Monthly	Within 30 days
2.	Storm Response	Within one week of significant storm event[2]	Within two weeks of storm event
3.	Site Winterization	By September 30 of each year	By October 31 of each year

1. If necessary repairs cannot be completed within specified time frame, the Discharger shall, within 7 days, notify the Regional Water Board and provide a schedule for completing them.
2. A "significant" storm event shall be one that produces 1.5 inches or more of precipitation within a 24-hour period, as measured at the Represa Station.

The results of these inspections, including documentation of any significant damage and/or repairs (e.g., field logs, site map showing location of damage, before and after photos) shall be included in the semiannual monitoring report for the period and summarized in the Annual Report. If no inspection and/or repairs were conducted as required above, the report shall so state, providing the reason and circumstances (e.g., landfill removed, no significant storm event during monitoring period). This monitoring shall discontinue upon concurrence by Regional Water Board Executive Officer that clean-closure is complete and in compliance with WDRs Order No. R5-2008-0106.

C. WATER QUALITY PROTECTION STANDARD (Section 20390)

The Water Quality Protection Standard (WQPS) for groundwater shall consist of all Constituents of Concern, Concentration Limits for each constituent of concern, Monitoring Points, Point of Compliance, and the Compliance Period.

1. Constituents of Concern (Section 20395)

The constituents of concern (COC) list includes all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The COCs for the landfill, including monitoring parameters, shall be as listed in Tables G.1 and G.2, which are incorporated herein and made part of this Order by reference. The COC list groups are as follows:

Table C.1

Constituents of Concern	Units	Test Method
Field Parameters:	See Table G.1	
General Minerals:	See Table G.1	
Dissolved Metals	µg/L	See Table G.1
Volatile Organic Compounds	µg/L	USEPA Method 8260B
Semi-Volatile Organic Compounds	µg/L	USEPA Method 8270
Organophosphorus Pesticides	µg/L	USEPA Method 8141A
Chlorinated Herbicides	µg/L	USEPA Method 8151
Organochlorine Pesticides	µg/L	USEPA Method 8081A
Polychlorinated Biphenols (PCBs)	µg/L	USEPA Method 8082

2. Concentration Limits (Section 20400)

The Discharger developed concentration limits using historical monitoring data from background well FCY-9. The previous six years (12 semiannual sampling events) of monitoring data was evaluated, as follows:

a. Statistical

CLs for statistical COCs were developed consistent with Monitoring Specification G.19 using a nonparametric statistical method (Chebyshev Prediction Limits) and an EPA software program (ProUCL, Version 4.0). A total of 26 inorganic COCs were identified for which at least 10% of the data from background samples equaled or exceeded their respective MDL. Upper prediction limits (i.e., CLs) were calculated at the 95 percent confidence level. The results are listed in Table G.1.

b. Non-Statistical

i. A total of 14 inorganic COCs were identified for which less than 10% of the data from background samples equaled or exceeded their respective MDL. Of these, 10 were not detected in background. In accordance with Monitoring Specification G.20, the concentration limits for these constituents were set equal to the MDL, as listed in Table G.1.

ii. The concentration limit for VOCs and all other organic COCs was set to the MDL in accordance with Monitoring Specification G.21.

3. **Monitoring Points (Section 20405)**

The monitoring points for groundwater monitoring shall be as identified in Table D.3.a herein.

4. **Point of Compliance (Section 20405)**

The point of compliance (POC) for the water standard is a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The POC wells shall include existing wells FCYs-2, 5, 6, 8, and 9, and any future wells that meet the above definition.

5. **Compliance Period (Section 20410)**

The compliance period (the minimum period for a landfill during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit) is equal to the active life of the Unit plus the closure period. Following removal of the landfill unit, the compliance period shall be extended until the discharger can demonstrate that the Unit has been in continuous compliance with the WQPS for a period of three consecutive years, including proof period under Section 20430(f), and as approved by the Executive Officer. See Monitoring Specification G.27.

D. GROUNDWATER MONITORING

1. **Groundwater Elevation Monitoring (Section 20415(e)(13))**

The groundwater surface elevation (in feet and hundredths, MSL) in all wells and piezometers shall be measured on a **quarterly** basis. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters may be used to fulfill this requirement. Groundwater elevations for all monitoring wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. The results of groundwater elevation monitoring shall be displayed on a water table contour map and/or groundwater flow net for the site and included in each monitoring report. The Discharger shall use the groundwater elevation monitoring data to determine the following, as feasible:

a. The groundwater flow velocity
b. The gradient direction in the upper aquifer, and in any additional zone of saturation monitored pursuant to this MRP
c. Times of highest and lowest elevations of the water levels in the wells
d. Estimated separation of groundwater from the lowest point of the unit

The results of these determinations shall be included in the semi-annual reports.

2. **Background Monitoring (Section 20415(b)(1)(A))**
Background monitoring shall be performed for developing and updating concentration limits as described in Section C.2.

a. Monitoring Points
The Discharger shall install and operate a sufficient number of background monitoring wells at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water that has not been affected by a release from the unit. The background monitoring system may include wells that are not hydraulically upgradient of the Unit if it can be demonstrated that samples from such wells are representative of background groundwater quality, or are at least more representative than those provided by upgradient wells. The background monitoring points for groundwater shall be as listed in Table D.3.a herein.

b. Monitoring Parameters
See Section D.3.b.

c. Monitoring Schedule
The background monitoring schedule shall be as specified in Table D.3.c.

3. **Corrective Action Monitoring (Sections 20425 and 20430)**
The Discharger shall install and operate a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the release and the progress of corrective action.

a. Monitoring Points
The corrective action monitoring locations shall be as follows:

Table D.3.a: Monitoring Locations

Aquifer	Zone	Monitoring Wells	
		Background	Downgradient
Upper	Dredge tailings	FCY-9[1, 2]	FCYs-2, 4, 5, 6, 8, 9[2]
Lower	Mehrten	FCYs-3[2], 7[2]	FCYs-3[2], 7[2]

1. No upgradient background well feasible due to limited extent of shallow zone. Discharger has demonstrated sufficiency of well FCY-9 for background monitoring per Section 20415(b)(2).
2. Intrawell monitoring performed on these wells (each well functions as its own background well).

Absent a demonstration that it is no longer needed for monitoring, any groundwater monitoring wells damaged or destroyed during clean closure activities shall be repaired or replaced, as applicable, in accordance with Section B herein.

b. Monitoring Parameters
Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for the landfill shall be as listed in Table D.3.c and Tables G.1 and G.2. Any COC confirmed by retest (per WDR Monitoring Specification G.23) to be a constituent of a release shall also be added to the monitoring parameter list per Monitoring Specification G.25. In such cases, the Discharger shall also follow the Response to Release requirements of the WDRs (Monitoring Specification E.22) and 1997 SPRR, as necessary.

c. Monitoring Schedule
A sufficient number of samples shall be taken from all monitoring points to satisfy the data analysis requirements for a given reporting period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Collection and analysis of samples shall be in accordance with procedures set forth in the Sampling Collection and Analysis Plan per Monitoring Specification G.5 of the WDRs. The groundwater corrective action monitoring schedule shall be as follows:

Table D.3.c:
Corrective Action Monitoring Schedule

Parameter	Units	Frequency	Data Analysis
Field Parameters			
Elevation	Feet MSL	Quarterly	---
Specific Conductance	µMhos/cm	Semiannually	---
pH	pH units	Semiannually	---
Redox potential	millivolts	Semiannually	---
Temperature	^{O}C, ^{O}F	Semiannually	---
Turbidity	NTU	Semiannually	---
Monitoring Parameters			
General Minerals:			
Chloride	mg/L	Semiannually	Statistical
Nitrate	mg/L	Semiannually	Statistical
Sulfate	mg/L	Semiannually	Statistical
TDS	mg/L	Semiannually	Statistical
Total Alkalinity	mg/L	Semiannually	Statistical
Total Hardness	mg/L	Semiannually	Statistical
Chemical Oxygen Demand (COD)	mg/L	Semiannually	Statistical
Major Anions[1]	mg/L	Annually	Statistical
Major Cations[1]	mg/L	Annually	Statistical
Dissolved arsenic	µg/L	Semiannually	Statistical

Parameter	Units	Frequency	Data Analysis
Dissolved Iron	µg/L	Semiannually	Statistical
VOCs[1]	µg/L	Annually	Statistical
Dissolved Metals[1]	µg/L	Annually	Statistical/Nonstatistical
COCs[1,2]	See Table C	Every 5 years	Statistical/Nonstatistical

1. See Tables G.1 and G.2 for the full list of constituents and EPA test methods.
2. COC monitoring shall be conducted by **15 December 2011** and at least every five years thereafter. If the landfill is clean closed per the WDRs Order No. R5-2008-0106 in 2008, then this sampling is no longer necessary.

d. Data Evaluation
Corrective Action monitoring data evaluation shall include the following:

i. Background Data
- Updating concentration limits for statistical monitoring parameters and COCs, as necessary.

ii. Nature and Extent of Release
- Comparing monitoring data with concentration limits to identify any new release or new constituent of existing release.
- Water chemistry analysis by ion balance and an appropriate graphical methods (e.g., Piper diagram, Trilinear plot, Stiff diagram)
- Preparation of contaminant contour maps for representative constituents/parameters (e.g., specific conductance, TDS, COD, Redox potential).

iii. Effectiveness of Corrective Action
- Preparation of time series plots for each constituent for which there are three or more data points (including non-detect values).
- Trend analysis for each constituent for which there are four or more data points above the practical quantitation limit (PQL), using appropriate statistical and graphical methods (e.g., Mann-Kendall, Sen's Slope).
- Comparing monitoring data with concentration limits (i.e., cleanup goals) to check progress in returning to compliance with WQPS.
- Comparing contour maps for representative constituents/parameters with those of prior years to track changes in plume concentrations and/or groundwater geochemical conditions.
- A discussion of the ongoing effectiveness of corrective action measures implemented (e.g., clean closure) and the need for additional corrective action measures and/or monitoring wells.